Physicians and Pharmacist Collaborate at the Workplace to Improve Value

By

Sharon Glave Frazee

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Introduction

The ever-rising cost of healthcare presents a major challenge to employers in the United States. Over the last several years, the costs of prescription drugs have risen precipitously, leading employers, insurers, benefit plan consulting companies, and the healthcare industry to strongly consider the use of effective, lower cost options. Most large U.S. companies have a vested interest in this topic. Large employers are usually self-insured, meaning that every unnecessary dollar spent on health care reduces company profits. While employers want to provide good health benefits for their employees and their dependents, they also need to constantly strive to control health care dollars spent in much the same way they continuously work to control waste in their production processes.

According to a PriceWaterhouseCoopers 2006 report on the factors fueling rising healthcare costs, 16% of healthcare premium dollars are spent on prescription drugs, with spending on prescription drugs rising 8.6% between 2004 and 2006.[1] Because of increased cost pressures on healthcare spending, employers, insurance plans and government health plans are increasingly utilizing benefit design methods to promote more cost-effective prescription drug choices. Pharmacy Benefit Management (PBM) and Pharmacy and Therapeutics (P&T) Committee efforts across the country have dedicated themselves to promote the use of effective and efficient medications through the implementation of formularies, limits on the number of prescriptions per month, multi-tiered drug plans, co-payment differentials, and other similar programs designed to reign in utilization and cost. Despite these efforts, there is much concern among employer purchasers, that increased spending is not associated with healthcare improvement and thus not yielding greater value.

A recent study conducted by the largest provider of workplace health and pharmacy centers, CHD Meridian, looked at another approach to improve the quality and value of prescription drug spending.[2] This study demonstrated improved prescribing practice through the collaboration between physicians and mid-level clinicians* and pharmacists dedicated to serving patients at a workplace health center. This effort, in conjunction with pharmacy benefit management, enters the realm we call Pharmacy Clinical Leadership™.

The Study

During a three year period more than 80,000 antibiotic prescriptions were filled at four large workplace health center pharmacies operated for a large, self-insured U.S. employer with manufacturing facilities across the country. These prescriptions were written by physicians within these workplace health centers or by physicians practicing in the surrounding communities. This study looked at the difference in the prescribing patterns of antibiotics between those written by physicians working within the workplace health centers in collaboration with the workplace pharmacists and those prescribed by doctors caring for patients outside of the worksite health units.

The Results

Worksite based health facilities that integrate primary care and pharmacy provide a unique opportunity to reduce costs and improve patient outcomes. This system offers employers a dedicated clinical unit that is focused on providing healthcare to their employees under their benefit structure and their formulary. This recent study illustrated the power of this "dedicated" collaboration, demonstrating how antibiotic prescribing can be improved through programmatic coordination of physicians and pharmacists at the workplace. This research showed that workplace health center treated patients receive a much higher prescription rate of 1st line

* For brevity, mid-level clinicians are included in the term "physicians" from this point.

antibiotics than community treated patients over the 3-year period, controlling for demographic and clinical factors.

The dramatic difference in pharmaceutical treatment between workplace treated patients and community treated patients found during this study reflects what can occur using this model. Workplace treated patients received less expensive, more appropriate 1st line antibiotics much more often than community treated patients as shown in Figure 1. This greater use of 1st line antibiotics was associated with an average of nearly $20 less per prescription than community treated patients, a potential savings of $1.5 million dollars for this employer.

[FIGURE 1 ABOUT HERE]

Discussion

It has been often said that the best way to influence prescription patterns is to influence the prescribing physician's pen. Ambulatory care physicians in the United States write approximately 126 million prescriptions for antibiotics each year[4], making antibiotics the second largest category of drugs prescribed by primary care physicians. The major reason so many antibiotic prescriptions are written is that nationally, infectious diseases account for 18% of all outpatient visits, with respiratory tract infections, otitis media (ear infections), and urinary tract infections constituting the largest percentage of infectious disease visits.[5]

Antibiotics have dramatically changed the ability of health care providers to fight infection. The therapeutic value of penicillin was discovered in the 1930s and widespread use began during World War II.[6] The development of other antibiotics quickly followed and antibiotic use increased dramatically over the next 60 years. Today, largely because of increased public health efforts to educate physicians about the dangers of over-prescribing antibiotics, the total number of antimicrobial prescriptions has decreased from their peak in the mid-1990s. This

trend however is not seen in the case of expensive, broad-spectrum antimicrobials which have been on the rise.[4] Studies show that physicians in some regions of the country prescribe broad-spectrum antibiotics up to 76% of the time.[7, 8]

While there are cases when newer drugs are more effective than older drugs and therefore are clinically superior, multiple studies have shown that older, less expensive drugs are often as or more effective as newer drugs.[9-13] In fact, in some cases, patients prescribed older drugs had fewer return physician visits than patients prescribed newer antibiotics.[14] It must also be considered that antibiotics can have adverse side effects,[15-16] and in some cases may not even be clinically beneficial.[17-18] Physicians are as vulnerable to marketing forces as consumers, and in the case of new pharmaceutical products, are often more susceptible.[19] This can lead to prescribing the newest and often most expensive antibiotic for an infection treatable with first line, usually generic, antibiotics such as penicillin.

First line antibiotics are time-tested and are associated with fewer, well-known side effects than their newer, more expensive, 2nd and 3rd line counterparts. With the emergence of infections resistant to antibiotics, the CDC recommends reserving the use of second and third line antibiotics for cases where there is compelling clinical evidence that they are necessary.[3] This study demonstrated that this can be accomplished when doctors and pharmacists work together supporting this clinical goal.

Workplace health centers that combine primary care and pharmacy allow both the physician and pharmacist to work together to focus on and optimize the value of one benefit plan and one formulary designed specifically for the employee population being served. Conversely, physicians and pharmacists in the community see patients employed by multiple companies and

covered by numerous health plans making it nearly impossible for them to be well versed in each employer's guidelines.

Pharmacists are also in an ideal position to promote appropriate antibiotic use through patient education. The integral role of pharmacists in educating patients regarding medication compliance has been well-documented.[20-23] This is particularly important with antibiotics where patient nonadherence to antimicrobial regimens often results in failure to eradicate the infecting organism and development of drug-resistant strains of bacteria.[24] Creating collaborative teams of primary care physicians and pharmacists has also been shown to improve the quality and cost-effectiveness of patient care.[20]

Employers and other entities interested in improving health and productivity have a vested interest in promoting appropriate antibiotic prescribing. Increasingly, employers understand that the health of employees affects the success of their company. Healthy employees tend to be more productive, with less absenteeism and presenteeism than unhealthy employees. There is good evidence that productivity losses can be reduced by appropriate pharmacological treatment.[25] A note of concern is that this study found that third line antibiotics were being prescribed 22% of the time by community physicians at large. Not only are these usually much more expensive but these practices might actually be impeding employee health and productivity.

While the specific line of antibiotic prescribed has not been linked directly to health and productivity in the literature, prescribing the most appropriate antibiotics when an employee has an infection is likely to be one way to improve health and productivity for several reasons. First, treating with the most appropriate antibiotic results in fewer return doctors' visits for the same ailment which equates to less lost time at work.[14] Second, first line antibiotics often have less severe side effects and reduced incidence of adverse drug reactions (ADR). Adverse drug

reactions account for 2-5 percent of hospital admissions,[26-27] with antimicrobial agents listed as the 2nd most frequent drug class (second only to Central Nervous System agents) cited as a factor in emergency department visits for ADR.[26] Therefore, it follows that reducing ADRs through more appropriate use of antibiotics is one way to reduce the number of days away from work. Even more importantly however, inappropriate use and overuse of third line antibiotics has also been linked to the development of drug resistant community infections such as Methicillin-resistant *Staphylococcus aureus* (MRSA) strains which can cause not only work absence but disability and even death.[28-31] Optimal prescribing of antibiotics limits the emergence of these 'super bugs' and have been promoted by vigorous campaigns led by both the CDC (Get Smart Campaign[3]) and World Health Organization (WHO Global Strategy for Containment of Antimicrobial Resistance[31]).

Antibiotic prescribing behavior is influenced by clinician, patient, and system factors.[32] Clinician factors include physician sociodemographics, knowledge, perceived patient expectations, and physician experience and training.[8, 33-37] Examples of patient factors are patient sociodemographics, reported symptoms, illness severity and expressed expectations,[8, 33, 36-39] while examples of system factors include practice setting, pharmaceutical detailing, and health benefit structures such as co-pays, formularies and restrictions.[4, 37, 40-41]

Workplace based health facilities provide a unique opportunity to impact many of these factors. By educating both physicians and patients, and by leveraging the "peer to peer" clinical relationships that develop between primary care and pharmacy services working together, the goal of appropriate prescribing can be attained. By integrating primary care and pharmacy in one location under shared management, physicians and pharmacists have immediate access to each other and can share information in a way that promotes better clinical practices and

capitalizes on the trusted relationship between the on-site clinician and the patient. The results presented in this recent study demonstrate the power of such collaboration.

The topic of appropriate antibiotic use has many facets including proper prescribing, patient perception of need for antibiotics and subsequent satisfaction with care delivered, therapeutic adherence by patients, drug-resistant pathogen development, and the effect that marketing tactics used by pharmaceutical companies has on prescribing practices. This paper focused on prescribing patterns in workplace health centers compared to community-based physicians for relatively common conditions: primarily respiratory tract infections and urinary tract infections. The results of this study indicate that physicians working in collaboration with pharmacists at workplace health centers prescribe a greater percentage of first line antibiotics than physicians in their communities, reducing costs while providing appropriate levels of second and third line antibiotics needed for more difficult to treat infections. There are situations where using 2nd and 3rd line antibiotics is appropriate, as in the care of patient being infected with a strain of bacteria that is resistant to 1st line antibiotics or when they are allergic to 1st line antibiotics.

The American Academy of Pediatrics (AAP), the Centers for Disease Control (CDC), and the Infectious Diseases Society of America (IDSA) recommend the use of first-line antibiotics for the treatment of most common, uncomplicated infections.[12, 42-44] The recommendations of such highly respected organizations combined with evidence that appropriate use of pharmaceuticals improve both health and productivity,[25, 45] provides a strong argument to continue to find ways to improve prescribing behavior.

Another important consideration is that antibiotics are often clinically unnecessary. The first step toward appropriate prescribing is knowing when, and when not, to prescribe an antibiotic and when not to.[46-48] While this was a secondary goal, the study results did demonstrate that

workplace treated patients who were treated for an infection had fewer antibiotics prescriptions than community treated patients. This goal is well documented in the literature and supported by campaigns such the Centers for Disease Control and Prevention (CDC) Get Smart Campaign and Tufts' Alliance for Prudent Use of Antibiotics (APUA). The growing issue of antibiotic resistance around the world has created a flurry of recommendations and continues to be a viable area of active research.[30-31, 49-50] Patients often lack knowledge about the dangers of antibiotic misuse,[51-52] so it is up to the health care community to be proactive in educating patients and decreasing patient risk through more responsible antibiotic prescribing behavior.

Drug advertising and academic detailing by pharmaceutical companies influence physicians prescribing behavior, specifically favoring the use of more expensive 3rd line antibiotics.[53-54] We believe that the reduced use of 2nd and 3rd line antibiotics in the workplace treated group was at least in part due to controlled and counter- pharmaceutical detailing. This is illustrated in that patients treated by community physicians had a 3rd line prescription rate over 2.5 times that of workplace treated patients. As shown by prior research, drug samples provided by pharmaceutical companies influence prescribing patterns. This research found that physicians are more likely to dispense and subsequently prescribe drugs that differ from their preferred drug choice because of the availability of samples.[55] The closed-door nature of workplace health centers allow samples to be controlled to only those within the formulary approved by the employer's benefit plan.

Conclusion

This article describes an approach that has proven successful in improving the quality and value of prescription drug spending through the collaboration between physicians and pharmacists dedicated to serving patients at a workplace health center. However, there is actually a third party collaborating in this approach: the employer. Workplace health centers are established to support patients using the benefit plan and formulary developed for a specific employer, working with the employer to ensure that patients receive exceptional clinical care, provide high levels of both patient and client satisfaction and deliver strong value for the employer's health care dollar.

Workplace health centers and implementation of programs that foster collaboration between employers, physicians and pharmacists promote the practice of evidence-based, cost-effective medicine and can keep the workforce healthy and productive. The authors plan future studies addressing the impact of such collaboration on generic utilization, formulary compliance, therapeutic substitution, and better use of OTCs.

The study described in this article provides strong evidence that by coordinating the "trusted clinicians at the workplace™ " (primary care physicians and pharmacists) and aligning care givers into a single, integrated delivery model will bring us closer to realizing the potential value of population health management. The benefits of this model include healthier employees, reduced health care costs, increased productivity, and reduced absenteeism. However, employers can take it to the next level through Clinical Pharmacy Leadership™. Moving beyond pharmacy benefit management to Pharmacy Clinical Leadership™ can change prescribing patterns to improve healthcare quality, clinical outcomes, manage costs, and align healthcare delivery to best serve an employer's community.

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